DOCUMENT RESUME

ED 341 499 PS 020 294

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TITLE Montessori Teachers' Intervention: Preliminary Findings from an International Study.
PUB DATE Nov 91
NOTE 17p.; Paper presented at the Annual Conference of the National Association for the Education of Young Children (Denver, CO, November 7-10, 1991). Last page was filmed from best copy available.
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Classification; Classroom Environment; Cross Cultural Studies; Early Childhood Education; *Error Correction; Foreign Countries; Language Arts; Mathematics Instruction; *Montessori Method; Pretend Play; Questionnaires; Serial Ordering; *Teacher Attitudes; *Teacher Behavior; Teacher Response; *Teaching Methods
IDENTIFIERS Canada; Haiti; Trinidad and Tobago; United States

ABSTRACT

In this study, a questionnaire was designed to assess Montessori teachers' reported likelihood of intervention in some 25 common situations in Montessori classrooms for 3-6 year olds, as well as to obtain limited background information on the teachers. Subjects were 422 Montessori teachers including 30 from Trinidad (where the questionnaire was first designed and field tested), 9 from Haiti, 362 from the United States, and 21 from Canada. Care was taken to ensure that each of the major Montessori teacher training organizations was represented in the sample. The primary research question to be answered was whether or not Montessori teachers say that they intervene in children's use of materials that require seriation or classification. Additional questions examined reported likelihood of intervention in fantasy play, math errors, language errors, general errors of fact, disruption, and dangerous activities. Findings showed that in the area of seriation and classification activities, Montessori teachers are quite consistent in reporting that they are not likely to intervene, while in the area of math and language, teachers are more likely to respond to errors. In the area of fantasy play results show that Montessori teachers are much more variable in their responses. While this could indicate that Montessori teachers are working to individualize their responses to each child in each situation, in fact it probably means that many teachers are uncertain how to respond to fantasy play in the Montessori classroom. (SH)

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ED341499

Montessori Teachers' Intervention: Preliminary Findings From An International Study

Paper Presented at the Annual Meeting,

National Association for the Education of Young Children,

Denver, 1991

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Introduction

The Montessori method of education continues to grow in popularity in the United States; public Montessori schools, often begun as magnet programs, are now offered in over 100 school districts nationwide (Kahn, 1990). Despite this growth, and despite accumulating research evidence of the effectiveness of Montessori preschools (Chattin-McNichols, 1981, 1992; Boehnlein, 1988), many concerns remain in the minds of traditional and constructivist early childhood educators. Some concerns have been in the area of the creativity of children in Montessori programs. (See, for example, Dreyer & Rigler, 1969). Other concerns have been raised about the social communication skills of Montessori children. (DeVries and Goncu, 1988).

Another area in which Montessori practices are frequently questioned has to do with the patterns of intervention of Montessori teachers. There is a persistent belief that Montessori teachers have been exposed during their Montessori teacher education programs to one correct way to use each of the sets of Montessori materials in the classroom. Furthermore, it is assumed that Montessori teachers are vigilant for uses of the Montessori materials other than the single one prescribed by the Montessori model. The vision that emerges in discussing Montessori teaching with non-Montessori early educators is one of Montessori teachers constantly intervening with the children's use of the materials to correct them.

If this were the case, constructivist theory would predict that little learning would occur, especially in the areas of conservation, seriation, and classification. This is because the learning should occur as the child becomes aware of his own errors, through feedback from the consequences of her actions. Learning also should occur in the social context of the classroom: children discussing their ideas of why something is not working, for example. If Montessori teachers are intervening before the child has a chance to make errors, or if the children are not free to discuss their errors and their ideas about them, little growth should be expected in Piagetian cognitive development. This idea is at odds with at least some findings (White, Yussen, and Docherty, 1978) in which Montessori preschool children are found to have more advanced seriation and classification skills than traditional preschool children.

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The issue of teacher intervention in Montessori classrooms was on my mind during my year in Trinidad as a Fulbright lecturer. The questionnaire, shown in the Appendix, was designed to assess Montessori teachers' reported likelihood of intervention in some 25 common situations in Montessori classrooms for 3-6 year olds, as well as limited background information on the teachers. The primary research question to be answered was whether or not Montessori teachers say that they intervene in children's uses of materials that require seriation or classification. Additional questions examined reported likelihood of intervention in fantasy play, math errors, language errors, general errors of fact, disruption, and dangerous activities.

Method, Sample, and Procedure

A questionnaire was designed and field tested with working Montessori teachers on the southern Caribbean island of Trinidad. After modifications, this questionnaire was given out at a national meeting of Montessori teachers. Discarding questionnaires completed by Montessori teachers in training or those with no Montessori teacher education left 30 teachers from Trinidad, approximately 75% of the total number on the island. In addition all nine Montessori trained teachers from Haiti completed the questionnaire.

Upon my return to the United States, several sources were used to obtain Canadian and United States samples. Mailing lists from the American Montessori Society (AMS) and the membership directory of the North American Montessori Teachers Association (NAMTA) were used.

One of the concerns was to have some representation from each of the major organizations which train Montessori teachers. Since these different organizations have teacher education programs which differ in length, course content, student teaching and supervision, and in virtually all other areas, it has been assumed that the teachers from this diverse field of preparation programs will have different skills, attitudes, and behaviors in the classroom. The Association Montessori Internationale (AMI) is the oldest of the Montessori organizations, and trains teachers worldwide. The AMS is currently the largest organization in the U.S., in terms of numbers of teachers trained. A newer U.S. organization, the National Center for Montessori Education, is growing in size, and two organizations from London, the London Montessori Centre and the St. Nicholas Montessori Teacher Training Organization conduct courses in several formats, including correspondence courses.

Through several mailings, and distribution of questionnaires at conferences, a sample was obtained which seems to be broadly representative of Montessori teachers in North America. It is, as far as I am aware, the largest study of Montessori teachers, and the only international study.

The validity of the study is limited by the fact that this is reported behavior, not actual classroom limitation. Also, the Haitian sample is too small to make many generalizations from, although it does represent, as far as can be determined, the entire population of Haitian Montessori teachers at the time of the study (1988). The Canadian sample is also small, and is mainly representative of AMI teacher education programs.

Results

The total number of questionnaires received, 422, and the distribution by training program and country can be sen in Figure 1. The "Other" category in the variable type of Montessori training was composed of the following: Caribbean Montessori Society, London Montessori, St. Nicholas, and several smaller organizations.

Figure 1

Observed Frequency Table

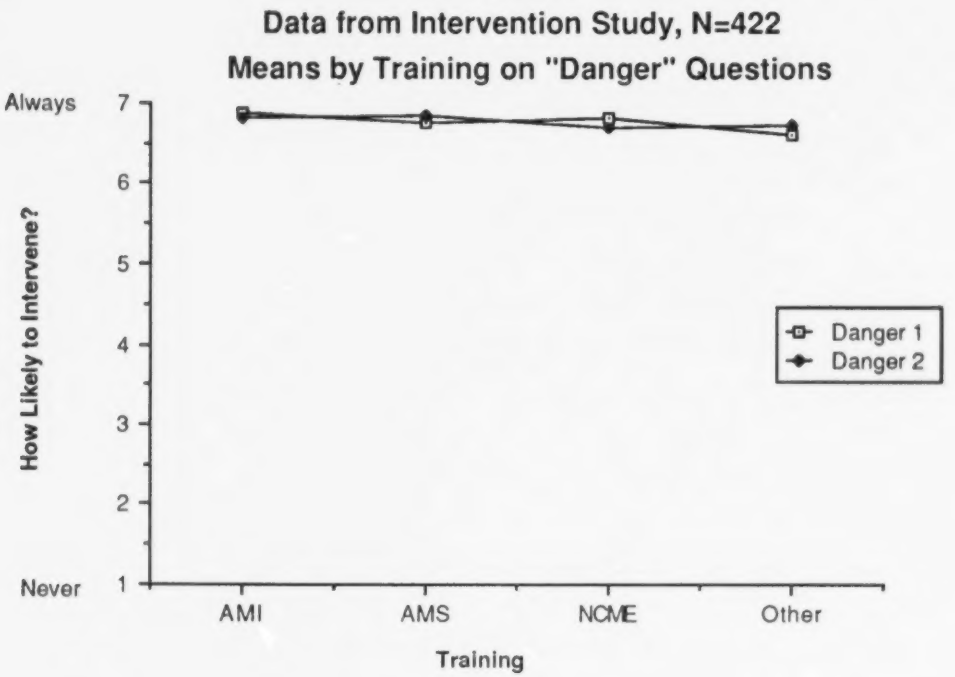
	AMI	AMS	NCME	Other	Totals:
Trinidad	6	1	6	17	30
Haiti	0	0	0	9	9
USA	126	195	24	17	362
Canada	12	0	4	5	21
Totals:	144	196	34	48	422

The first analyses were on those areas in which one would expect consistency from Montessori teachers, regardless of nation and type of Montessori teacher education. Two questions on the questionnaire described situations in which potential harm to a child was indicated:

- 6. A child swings one of the number rods at another child, using it as a sword.
- 17. A child has taken a triangle from the Constructive Triangles and is poking other children.

As can be seen from Figure 2, Montessori teachers are very consistent in responding that they would be very likely to intervene on these occasions. This was true across training programs and nations.

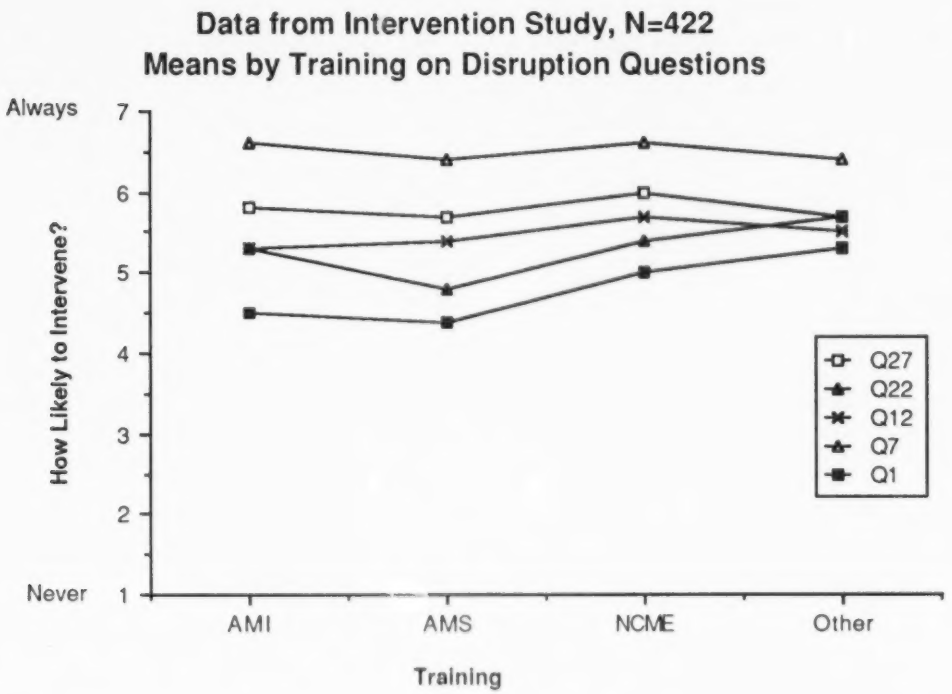
Figure 2



Several questions addressed situations in which a child was disruptive in the classroom. These are shown by question number; please refer to the Appendix for the actual questions. In Figure 3, the first thing that is apparent is that the various forms of disruption are calling forth different responses from the teachers.

Montessori teachers are relatively intolerant of children's disruptive activities. Training traditions affect some of the means nonsignificantly, but country of origin is almost always a significant influence. Haitian teachers, in particular, brook little or no disruption in their classrooms. Trinidadian teachers are the least likely to intervene, while teachers from Canada and the United States are in between these extremes.

Figure 3



The next area examined was the responses of teachers to errors in the classroom, with a special interest on the errors that occur in seriating and classifying. My hypothesis was that Montessori teachers would report relatively low likelihoods of intervention in these areas, and my hope was that this would be consistent across countries and training traditions. As can be see from Figure 3, Montessori teachers report that they are very unlikely to intervene in errors of this sort. Classification errors were the least likely to be targeted by a teacher for intervention (of all of the possible types of errors) and seriation the next least likely. See Figure 4.

Figure 3

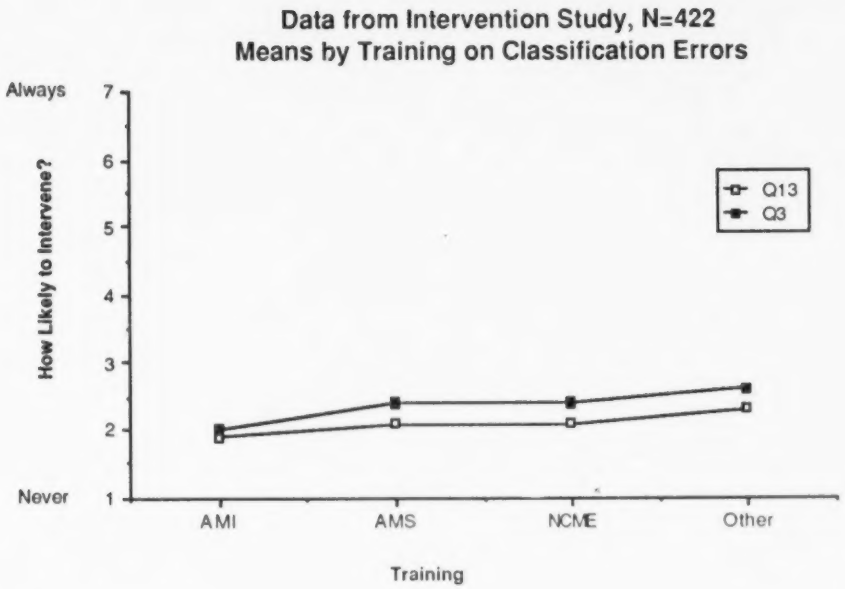


Figure 4

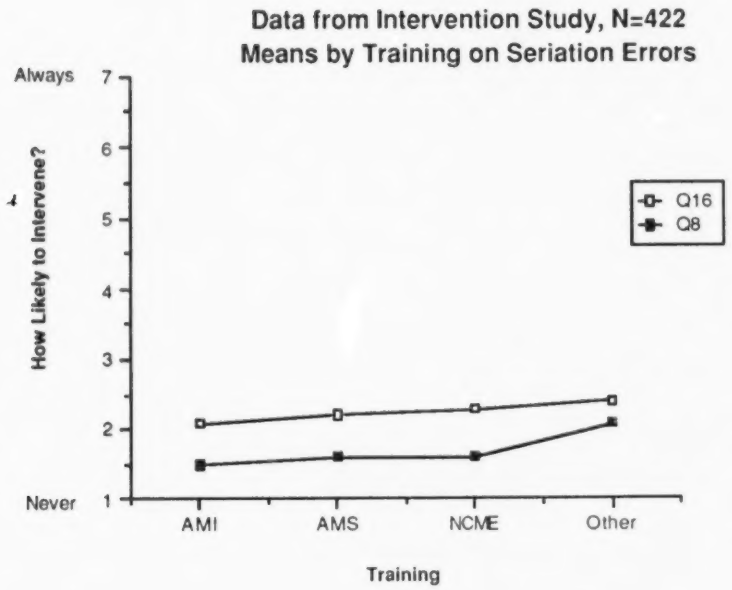
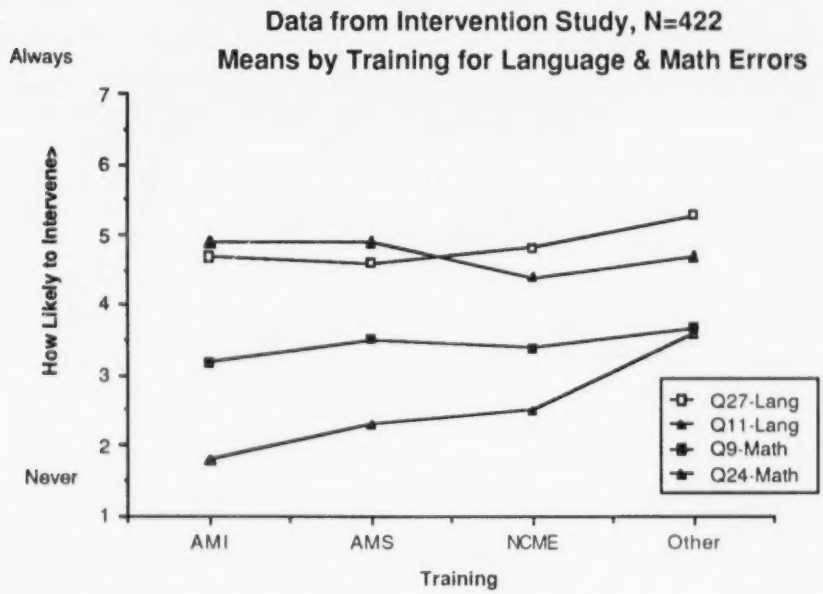


Figure 6



In Figure 5, you can see that there is more variation (by training) in teacher's response to math and language errors made by children. One of the most surprising findings was the response to question 11, about a language error:

•11. A child using the movable alphabet has labeled an object, spelling the word "butterfly": buttrfli.

Montessori is very clear, it seems to me, on the fact that the fluency of children's spontaneous writing is not to be dampened by corrections to orthographically correct spelling. Yet, a substantial proportion of North American Montessori teachers report that they would correct these errors if made by a preschool age child. They was a slight but statistically significant difference among the training groups on this question: AMI teachers were slightly less likely to report that they would intervene than AMS teachers.

In summary, teachers are most consistent about danger and quite consistent about seriation and classification errors. Responses to math and language errors are moderately consistent across teachers in different training traditions and across nations.

There were also some interesting results in the area of fantasy play in the Montessori classroom. I have divided the situations involving children's fantasy play into two categories. One category includes those fantasy situations which are likely to have been included in the teacher education programs, and in which the fantasy is "in line" with the primary use of the materials. I have called these "OK Fantasy" questions:

- 15. A child playing the banker in the Bank Game with the Golden Beads begins to call out softly, "Money! Get your golden money here! I'm the banker! See me now for changing money!"

- 20. The child is using the Farm, but rather than applying the labels, she is making each animal move and make its characteristic sound, such as ,"Moo!"

- 25. A child makes several constructions with the Geometric Solids, calling them a silo, a church, and so on.

These situations, I hypothesized, would be less likely to provoke teacher's interventions, and, in general, should have a more consistent response from teachers, at least within training groups. In fact, as can be seen in Figure 7, there is little consistency.

Figure 7

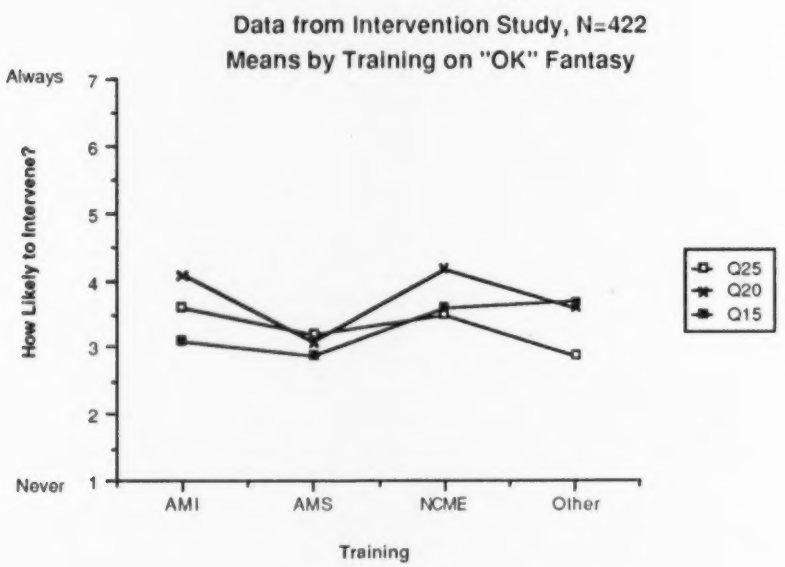
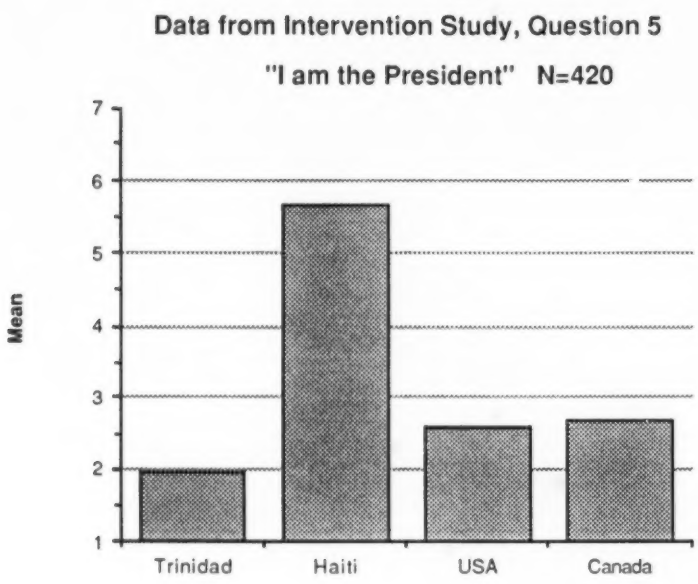


Figure 8



High standard deviations for these figures, as well as mean scores near the midpoint response of "sometimes" characterized the responses to these questions. In fact, the responses to these "OK fantasy questions" were not significantly different from those to the other fantasy questions. Figure 8 shows national differences: Haitians were by far the most likely to intervene, as shown by the responses to Question 4. One question, however, evoked a strong response from the teachers:

> • 18. A child has placed the counters from the cards and counters exercise into two groups of "men" and is preparing to have one group attack the other.

This item had one of the highest likelihoods of intervention of any, almost as high as questions concerning danger to the children. It's not clear whether the teachers felt that this would lead to noise or disruption, or even danger, or whether this was seen as a gross misuse of materials. In any case, this warlike fantasy would be stopped by almost all teachers. The fact that so many Montessori teachers responded with "Sometimes" and the fact of the wide range of responses (from 1 to 7) on almost every question) indicates that perhaps Montessori teacher education programs are not preparing Montessori teachers adequately for the fantasy that will go on in their classrooms.

In general, then, with the exception of the likely intervention in the planned war with the counters, Montessori teachers seem to be reporting that they sometimes, at least, allow fantasy activities to continue.

Conclusions

In this first large scale study of Montessori teachers, despite the limitations of a survey method, and uneven distribution by country and training program, several general conclusions can be drawn. First, Montessori teachers in many areas respond with surprizing unanimity, considering the differences between, for example, Trinidadian and suburban American schools. In the area of seriation and classification activities, Montessori teachers are quite consistent in reporting that they are not likely to intervene. Results in errors of math and language are more like to be responded to by the teacher. This is surprizing, especially in the case of the correct of invented spelling by preschooler, in light of Montessori's clear statements on this.

In the area of fantasy play, results show that Montessori teachers are much more variable in their responses. While this could indicate that Montessori teachers are working to individualize their responses to each child in each situation, in fact it probably mans that many teachers are uncertain how to respond to fantasy play in the Montessori classroom. This implies tat Montessori teacher education programs need to make certain that their graduates are more fully prepared to address this issue.

Additional analyses are underway, as is an attempt to obtain a larger Canadian sample. An ideal follow-up study would be an observational study designed to examine the relationship of teachers' reported intervention patterns and actual behavior in the classroom.

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APPENDIX

Preprimary Montessori Teachers (3-6) Questionnaire:

When to Intervene?

Instructions

Please enter the information requested about your Montessori training and the number of years you have taught in a Montessori 3-6 class **after** your training. Then, write in a percentage, from 1 to 100%, that represents the amount of time that children have free choice of any material in your morning classroom time.

Next, for each of the situations described below, please circle a number from 1 to 7 that indicates **how likely you would be to intervene**. Assume for the questionnaire that the work described is appropriate for the child in terms of his or her age and ability. Many Montessori teachers will want to answer that intervention depends on each individual child. While this is true, for this questionnaire, please imagine the "typical" child, with average self-confidence, initiative, and so on. Just try to imagine the situation as occurring in your own classroom, then give your immediate response on the scale below the question.

With your cooperation, we can respond to critics of the Montessori method and find out more about how and why the Montessori method works. Thank you for your cooperation.

Part I: **You**

1. Your training. (Please give the name of the organizational affiliation of your training program, such as AMI, AMS, St. Nicholas, NCME, etc....._____

2. How many school years since your training have you taught in a Montessori 3-6 classroom?.....____

3. What percent of the usual morning period in your classroom is free choice time for the children (1% to 100%)....._____

Part II: **Intervention** (Circle the number from 1-7 underneath each question to show how likely you would be to intervene.)

1. The child has taken two of the sound cylinders (one in each of his hands) and is shaking them next to the ears of another child working at a mat.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

2. The child has taken out the second box of colour tablets and is pointing to an orange tablet, saying,"Red."

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

3. The child has sorted 12 baric (weight) tablets into 3 piles of heavy, medium, and light weights while blindfolded. There are several mistakes.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

4. The child has created an enclosure ("a corral") with the pieces of the long red rods. Some of the smaller rods ("the cattle") are enclosed within.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

5. A child has taken the flag of Brazil and placed it on the corner of her table. "I am the President," she proclaims, pointing to the flag.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

6. A child swings one of the number rods at another child, using it as a sword.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

7. A child using the rough and smooth tablets decides to use them like sandpaper rhythm blocks, moving them together to make a sound and marching through the classroom.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

8. A child working with the Knobbed Cylinders places a cylinder in an incorrect hole.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

9. A child doing addition with the bead stair writes down: 2+3=6.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

10. The child is sorting the tasting bottles into three groups (sour, sweet, and salty). He tastes a drop and says," Mmmm! What good wine! "

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

11. A child using the movable alphabet has labeled an object, spelling the word "butterfly": buttrfli.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

12. The child has put several of the Bells in ascending order. She then runs past them, holding out the striker and striking them, singing loudly.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

13. A child has sorted fabrics into three groups, but has placed nylon and silk together by mistake.

1	2	3	4	5	6	7
Never	Almost	Would not	Intervene	Would	Almost	Always

Intervene	Never	Usually	Sometimes	Usually	Always	Intervene

14. A child has constructed an elaborate "castle" with the broad stair and pink tower together. "This is the fortress of solitude," she tells you.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

15. A child playing the banker in the Bank Game with the Golden Beads begins to call out softly, "Money! Get your golden money here! I'm the banker! See me now for changing money!"

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

16. A child has laid out one colour-set of the Third Colour Boxes, from darkest to lightest. She has made two mistakes.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

17. A child has taken a triangle from the Constructive Triangles and is poking other children.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

18. A child has placed the counters from the cards and counters exercise into two groups of "men" and is preparing to have one group attack the other.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

19. The child is explaining to another, pointing to Australia on the world map, "This is Greenland."

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

20. The child is using the Farm, but rather than applying the labels, she is making each animal move and make its characteristic sound, such as ,"Moo!"

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

21. A child has made a snake from plasticene. "This is a real snake," he informs you. "He is poisonous."

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

22. A child crawls along the floor to where some children are reading and gently bumps them with his head.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

23. A child has laid out several of the colour sequences from the Third Box of Colour Tablets. "This is my beauty parlor," she says. "Show me what colour you would like your nails done."

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

24. A child attempts to bring the number card for 300 and brings the 30 instead.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

25. A child makes several constructions with the Geometric Solids, calling them a silo, a church, and so on.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

26. A child is asked to say the sound his name begins with; he gives another sound.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

27. A child in the middle of the room begins singing loudly the theme music from a popular cartoon show, using gestures.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

28. A child has painted a castle with his paints. "I'm going to move to this castle and really live here," he informs you.

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

29. A child pouring rice in the Practical Life area asks another child,"How much rice shall we use for our rice cakes? Let's be bakers, OK?"

1	2	3	4	5	6	7
Never Intervene	Almost Never	Would not Usually	Intervene Sometimes	Would Usually	Almost Always	Always Intervene

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Thank you for your cooperation. Please return the questionnaire to Dr. Chattin-McNichols.

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